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July 1, 1993

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: ET Docket No. 92-9

Dear Mr. Caton:

Pursuant to Section 1.1206 of the Commission's Rules, Alcatel Network Systems, Inc. ("Alcatel") hereby notifies the Commission that, on this date, an ex parte meeting regarding the above-referenced proceeding was held with Commission staff. In addition to the Commission staff, in attendance at this meeting were representatives of Alcatel, the "Joint Commenters" in this proceeding (i.e., TeleSciences, Inc., Harris Corporation-Farinon Division, and Digital Microwave Corporation), and Comsearch.

The attached document was distributed to the Commission staff members present at this meeting. All matters discussed during this meeting are reflected in the attached document or already are included in the record of the above-referenced proceeding.

Should there be any questions concerning this matter, kindly contact the undersigned counsel for Alcatel.

Sincerely,

Robert J. Miller

RJM/dwt
Attachment

cc (w/attachment): C. Wang, Esq.
L. Raish, Esq.

145684/3

PROPOSED RULE CHANGES

FURTHER NOTICE OF PROPOSED RULE MAKING
FEDERAL COMMUNICATIONS COMMISSION
ET Docket 92-9
RM-8004

Composed by
Alcatel Network Systems, Inc.
Technical Staff

July 1, 1993

TABLE OF CONTENTS

SUMMARY

On May 20, 1993, Alcatel Network Systems, Inc. ("Alcatel") filed supplemental comments in Docket 92-9, proposing a Compromise Channelization Plan.[1] On May 28, 1993, the FCC requested comments on the Alcatel supplemental filing.[2] Industry comments regarding the Compromise Plan are generally favorable.

In this report, Alcatel proposes specific rule changes to implement its Compromise Plan. Alcatel used the following procedure in the preparation of this report:

* The text closely follows the proposed rules in the Further Notice of Proposed Rule Making.[3]

* The channelization plan and other recommendations from the Compromise Plan are incorporated into the rules.

* Most of the changes recommended by the TIA are included,[4] except as noted in the discussion below.

* Recommendations from numerous other commenting parties in Docket 92-9 are included.

The following is a discussion of the proposed rule changes. The specific rules are detailed in Appendix A.

I. PART 2 - FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

Some minor changes are made to the tables of frequency allocations (i.e., footnotes are added to various bands). These changes are from the October 1, 1992 revision of the FCC Regulations.

II. PART 21 - DOMESTIC PUBLIC FIXED RADIO SERVICES

A. Section 21.2 Definitions.

A definition of automatic transmit power control (ATPC) is added.

Currently, the EIRP standard for the 5,925-6,425 MHz band is +55 dBM, from Section 21.107. The EIRP standard for the 6,525-6,875 MHz band is +50 dBM, from Section 94.73. Alcatel recommends that the higher Part 21 standard be applied in all affected bands, for the following reason. The transmit power of state-of-the-art digital microwave radios is typically 1 to 5 watts, for the 4, 6, 10, and 11 GHz bands. In the 4 and 6 GHz bands, antennas ranging from 6 to 15 feet in diameter are available. In the 10 and 11 GHz bands, antennas from 2 to 12 feet are available. The following table shows typical EIRP's, assuming a 5 watt transmit power and 100 feet of waveguide in each band:

Frequency Band (GHz)	Transmit Power (dBM)	Antenna Size (feet)	Antenna Gain (dBi)	Waveguide Loss (dB)	Calculated EIRP (dBW)
4.0	+37	15	42.7	0.8	48.9
6.1	+37	15	46.4	1.2	52.2
6.7	+37	15	47.1	1.4	52.7
10.5	+37	12	49.3	3.2	53.1
11.2	+37	12	49.8	3.1	53.7

In most frequency bands, the +50 dBW EIRP standard cannot be achieved without reducing antenna sizes. As a result, the +50 dBW EIRP standard would adversely impact the path reliability on long paths, where large antennas are required. For this reason, Alcatel recommends that the +55 dBW EIRP standard be used.

(c) A sentence is added, clarifying the use of automatic transmit power control (ATPC) in Part 21 bands.

D. Section 21.108 Directional antennas.

(c) Antenna standards are added for the 6,525-6,875 MHz and 10,700-11,700 MHz bands, and changes are made to some of the antenna standards for the 5,925-6,425 MHz and 10,550-10,680 MHz bands.

A number of commenters in Docket 92-9 support improved antenna standards.[6] However, no specific standards were proposed. Alcatel recommends that the current Category A standards for the 5,925-6,425 MHz band be used in both the 6 GHz common carrier and private bands, and that the current Category B standards for the 6,525-6,875 MHz band be used in both bands. Under this approach, the more stringent of the existing 6 GHz standards would be used for both Category A and Category B. Requiring the same standards in both bands will promote balanced use of the bands among spectrum users, and permit similar antenna designs in the two bands.

For the 10,550-10,680 MHz and 10,700-11,700 MHz bands, Alcatel recommends that the existing Category A standard from the 5,925-6,425 MHz band be used. For Category B, the existing standard from the 10,550-10,680 MHz band is proposed. The Category B standard will allow the continued use of 2 foot antennas in existing point-to-multipoint systems in the 10 GHz band. Alcatel also proposes a minimum antenna gain of 38 dBi for point-to-point systems in these bands, consistent with the standards in all other bands from 6 GHz to 31 GHz.

In the table of proposed antenna standards, the old and the new standards are listed for the 5,925-6,425 MHz, 6,525-6,875 MHz, and 10,550-10,680 MHz bands. Alcatel recommends that a 3.5 year transition period apply to antenna standards in these bands. The old antenna standards would apply during the transition period, and to existing installations. The new standards would apply after the transition period. This transition period will provide antenna manufacturers with time to develop antennas that meet the new standards, and to reduce inventories of obsoleted products.

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6. Comments to ET Docket 92-9, December 11, 1992: Comsearch at 20; MCI at 2; GTE at 10; USTA at 7.

E. Section 21.122 Microwave digital modulation.

(a)(1) This paragraph contains the new spectrum efficiency requirements for digital radios, as proposed in the Alcatel Compromise Plan. Note that for 30 MHz channel bandwidths, 2 DS3 minimum payload capacity is specified in the table. Alcatel, UTC, US West, Pacific Telesis, and Microwave

(a)(4) This paragraph is added in response to the comments of the Public Broadcasting Service ("PBS"), regarding the use of digitized video over microwave entrance links, to connect satellite earth stations to local studios.[8] Alcatel stated in previous comments that it does not believe that the spectrum efficiency requirements of Section 21.122 would apply to the proposed PBS system.[9] However, the rules are unclear on this point. This proposed rule will permit lesser spectrum efficiency for digitized video systems, provided that there is a substantial public benefit and no viable technical alternative.

(b) This paragraph defines a digital transmitter. The old definition was written many years ago, and only applies to frequency modulated (FM) radios. Most digital radios manufactured today do not use FM; most are derivatives of amplitude modulation (i.e., QAM, QPRS). A new sub-section is added defining digital modulation in terms of bandwidth utilization (i.e., digital modulation occupies 50 percent or more of the necessary bandwidth). The old definition is retained in a different sub-section, for systems employing frequency modulation.

F. Section 21.123 Microwave analog modulation. (new section)

(a) In the proposed rules in the Further Notice, the FCC retains the current channel loading requirements for analog radios. Alcatel did not include analog loading requirements in its Compromise Plan.

This new paragraph defines minimum channel loadings for analog radios. It retains the current requirement of 900 voice channels for wideband systems, and uses the 1/N rule of Section 21.122(a)(2)(i) to define loading requirements for narrower channels. Video systems and bandwidths of less than 10 MHz are excluded from the minimum loading standards. The current 11 GHz standards are maintained during the 2.5 year

G. Section 21.124 Minimum traffic loading. (new section)

The text in Section 21.124 is relocated from Section 21.710.

Currently, Section 21.710 requires that the minimum loading should apply "over 5 years or other period subject to reasonable projection". Alcatel, UTC, US West, Pacific Telesis, and Microwave Networks, Inc. support the current requirement or are opposed to any loading requirements. The TIA and the Joint Commenters suggest that the 5 year time period be changed to 2.5 years.[10]

The phrase "Except for video transmission" is removed from this section, for the following reason. Many digital radios carry a variety of traffic payloads, including digitized video. A blanket exclusion for video transmission could exclude the majority of digital radios from the spectrum efficiency requirements of Section 21.122. Alcatel proposes that this phrase be removed from Section 21.124, and specific exclusions for video be added to Sections 21.122(a) and 21.123(a) for digital and analog modulation, as discussed above.

H. Section 21.502 Frequencies.

(e) This new paragraph allows existing point-to-multipoint systems in the 10,550-10,680 MHz band to continue operations after the Report and Order date. No new licensees would be authorized. Alcatel proposes that new frequencies be authorized for existing systems, but only within the same SMSA and only within the existing point-to-multipoint section of the 10 GHz band. The division of the point-to-multipoint band between private and common carrier sections would be eliminated. Point-to-point operation would be authorized in the entire 10 GHz band, subject to frequency coordination constraints.

I. Section 21.503 Frequency stability.

(a) The frequency stability for the 10,550-10,680 MHz band is changed to 0.0003% for nodal and user stations. This is the current standard in Section 94.67 for Digital Termination Systems.

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10. Comments to Alcatel Supplemental Filing, Public Notice DA 93-603, June 14, 1993: UTC at 7; US West at 7; Pacific Telesis at 3; Microwave Networks, Inc. at 6; TIA at 2; Joint Commenters at 2.

J. Section 21.701 Frequencies.

(a) The 6,525-6,875 MHz and 10,550-10,680 MHz bands are added to the table of frequency bands. Footnotes are added for shared Part 94 use in all affected bands. Footnotes also are added for shared Part 22 Mobile use in the 5,925-6,425 MHz, 6,525-6,875 MHz, and 10,550-10,680 MHz bands (see Part 22 below).

(c) This new paragraph states that the transmit and receive frequency pairings listed in this section are recommended, and are not mandatory. This is an extremely important point, since many non-standard pairings were used in the past in the 4, 6, and 11 GHz common carrier bands. Frequency coordination will be difficult or impossible in congested areas without this stipulation.

(d) This new paragraph allows channel concatenations in specified bands. In its comments, the TIA recommends that two additional restrictions be applied to concatenated channels: allowing concatenations only if all other channels are blocked, and requiring that concatenated channels use authorized frequencies.[11] These restrictions are included in the proposed rule.

(e) 932.5-935 and 941.5-944 MHz frequencies.

(f) 3,700-4,200 MHz frequencies.

(g) 5,925-6,425 MHz frequencies. The proposed rule allows non-standard frequencies to be used, upon an appropriate showing to the FCC. Although most 6 GHz users now use the AT&T "T-Plan" for 30 MHz channels, some existing systems use the "Split Plan" and the "Staggered Plan", which are different than the "T-Plan". This exception will allow spectrum users employing these obsolete frequency plans to expand their systems without requiring extensive frequency recoordination.

(h) 6,525-6,875 MHz frequencies. The proposed rule specifies that frequency coordination should be performed using the technical standards of Part 94. Further, it requires that the prior coordination procedure of Part 21.100(d) should be used in this band.

(i) 10,550-10,680 MHz frequencies.

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11. TIA at p. 2.

(j) 10,700-11,700 MHz frequencies. The proposed rule permits radios authorized for a 30 MHz bandwidth to be used in 40 MHz channels in congested areas. As Alcatel described in previous comments, there are currently two frequency plans in widespread use in the 11 GHz band: the DE Plan and the PJ Plan.[12] This rule allows 30 MHz radios to be coordinated in areas using the DE Plan.

Alcatel believes that this procedure will be necessary in a large number of frequency coordinations, since the DE plan is used in approximately half of the metropolitan areas in the U.S. For that reason, no requirement is included for a special showing to the FCC.

K. Section 21.710 Limitations on path lengths

This section has a new title, since the channel loading requirements are removed. The channel loading requirements are now located in Sections 21.122 through 21.124.

(b) This paragraph defines the maximum EIRP for short microwave paths, based on an equation. The same equation is used in Section 94.79. A change is made to the equation, allowing 5 dB higher EIRP's than the current standard in Section 94.79. This corresponds to the 5 dB change in the

III. PART 22 - PUBLIC MOBILE SERVICE

Section 22.501 Frequencies.

(e) This paragraph allows control and repeater stations in the Public Land Mobile Service to relocate from the 2 GHz band to the 5,925-6,425 MHz, 6,525-6,875 MHz, and 10,550-10,680 MHz bands. These relocating systems must use the prior coordination procedure of Section 21.100(d).

In the proposed rules in the Further Notice, the FCC specifies a maximum authorized bandwidth of 800 KHz for these systems. Alcatel proposes that these systems be required to use the 800 KHz channels defined in Section 21.701.

Harris Corporation-Farinon Division proposes that relocating control and repeater stations be permitted to use 1.25 MHz channels.[13] Alcatel believes that these systems should not be granted more spectrum than is necessary to carry out their intended communications. If 1.25 MHz channels are authorized, these systems should justify their use of the spectrum by meeting the spectrum efficiency requirements of Section 21.122(a) and 21.123(a).

IV. PART 94 - PRIVATE OPERATIONAL-FIXED MICROWAVE SERVICE

[redacted]

(l) This is a new paragraph. Part 94 users of the 4, 6, and 11 GHz common carrier bands must use the technical standards of Part 21, Subpart C.

(m) This is a new paragraph. Transmit and receive frequency pairs are recommended, and are not mandatory, unless otherwise noted. This is the same paragraph as Section 21.701(c).

(n) This is a new paragraph allowing channel

F. Section 94.65 Frequencies.

(g) 3,700-4,200 MHz frequencies.

(h) 5,925-6,425 MHz frequencies.

(i) 6,525-6,875 MHz frequencies.

(j) 10,550-10,680 MHz frequencies. This paragraph contains the same text as Section 21.502(e), regulating the use of point-to-multipoint Digital Termination Systems in the 10 GHz band.

(k) 10,700-11,700 MHz frequencies.

G. Section 94.67 Frequency tolerance.

The frequency tolerances for the 3,700-4,200, 5,925-6,425 MHz, and 10,700-11,700 MHz bands are added to the table. The frequency tolerance for the 10,550-10,680 MHz band is changed to 0.005 percent for point-to-point systems and 0.0003 percent for point-to-multipoint systems.

H. Section 94.71 Emission and bandwidth limitations.

(b) The 3,700-4,200 MHz, 5,925-6,425 MHz, and 10,700-11,700 MHz bands are added to the table. Footnotes are added to the 6,525-6,875 MHz and 10,550-10,680 MHz bands.

I. Section 94.73 Power limitations.

(a) The 3,700-4,200 MHz, 5,925-6,425 MHz, and 10,700-11,700 MHz bands are added to the table. The maximum EIRP standards for the 6,525-6,875 MHz and 10,550-10,680 MHz bands are changed to +55 dBW, as discussed in Section 21.107(b) above. Corrections are made to some of the footnotes.

J. Section 94.75 Antenna limitations.

(b) The 3,700-4,200 MHz, 5,925-6,425 MHz, and 10,700-11,700 MHz bands are added to the table. The antenna standards for the 6,525-6,875 MHz and 10,550-10,680 MHz bands are changed, as discussed in Section 21.108(c) above.

(h) The text of this paragraph, concerning point-to-multipoint antenna standards, is changed to agree with the revised paragraph (b). The standards remain the same.

K. Section 94.77 Interference to geostationary-satellites.

The range of frequencies is changed to 5,925-6,875 MHz. A similar change is made to Section 21.108(e).

L. Section 94.79 Minimum path lengths for fixed links.

(b) This paragraph defines the maximum EIRP for short microwave paths, based on an equation. The equation is changed, as discussed in Section 21.710(b). A note is added, allowing automatic transmit power control (ATPC) to be used to meet the EIRP requirement.

M. Section 94.94 Microwave digital modulation.

(h) This is a new paragraph. It requires that the

APPENDIX A

PROPOSED RULE CHANGES

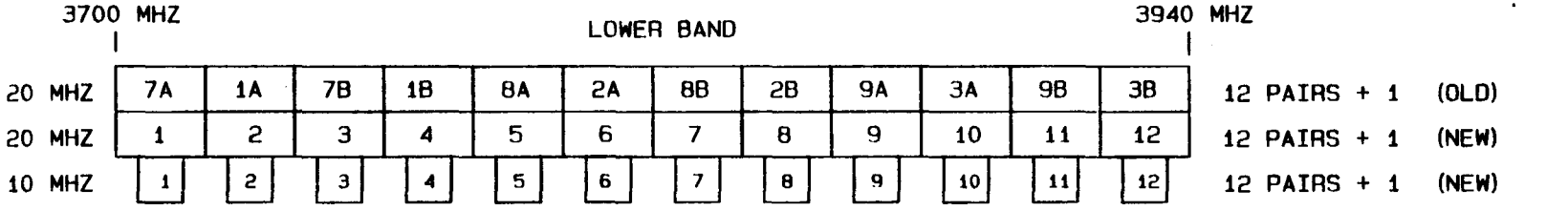
PROPOSED RULE CHANGES

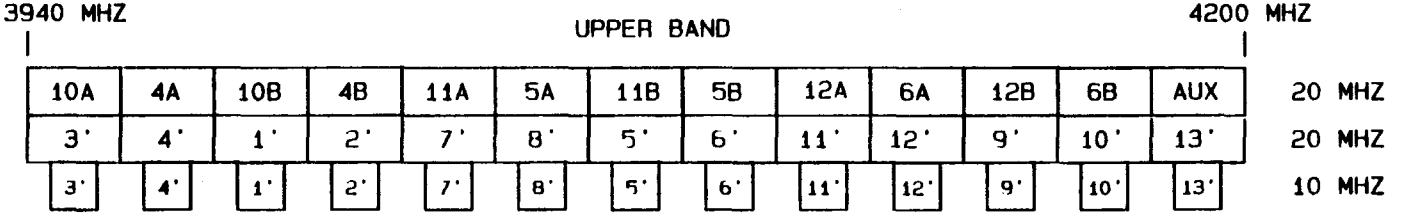
FURTHER NOTICE OF PROPOSED RULE MAKING
FEDERAL COMMUNICATIONS COMMISSION
ET Docket 92-9
RM-8004

Composed by
Alcatel Network Systems, Inc.
Technical Staff

July 1, 1993

COMPROMISE CHANNEL PLAN – 4 GHZ BAND

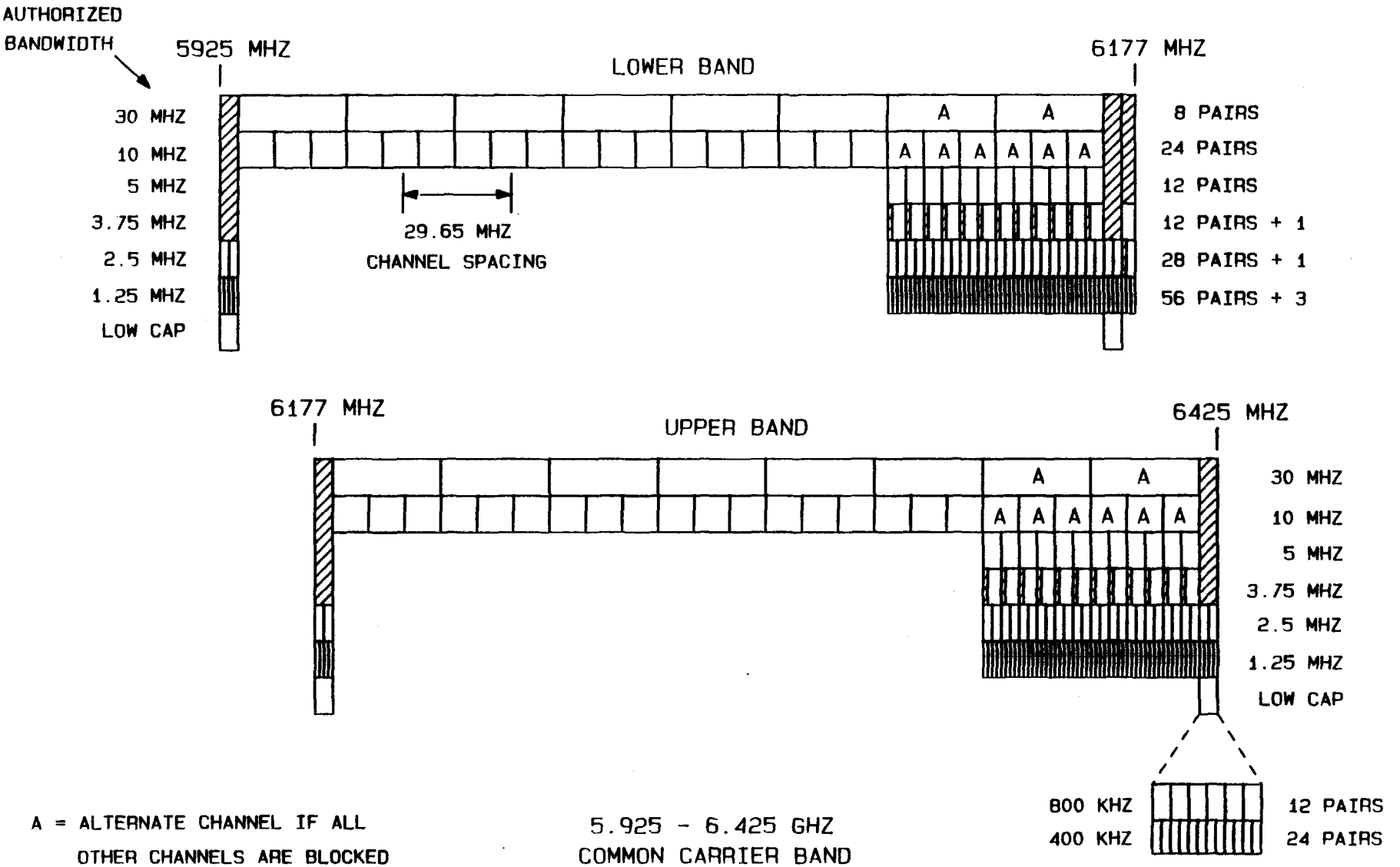




3.7 - 4.2 GHZ
COMMON CARRIER BAND
FREQUENCY CHANNELIZATION

Figure 1

COMPROMISE CHANNEL PLAN – LOWER 6 GHZ BAND

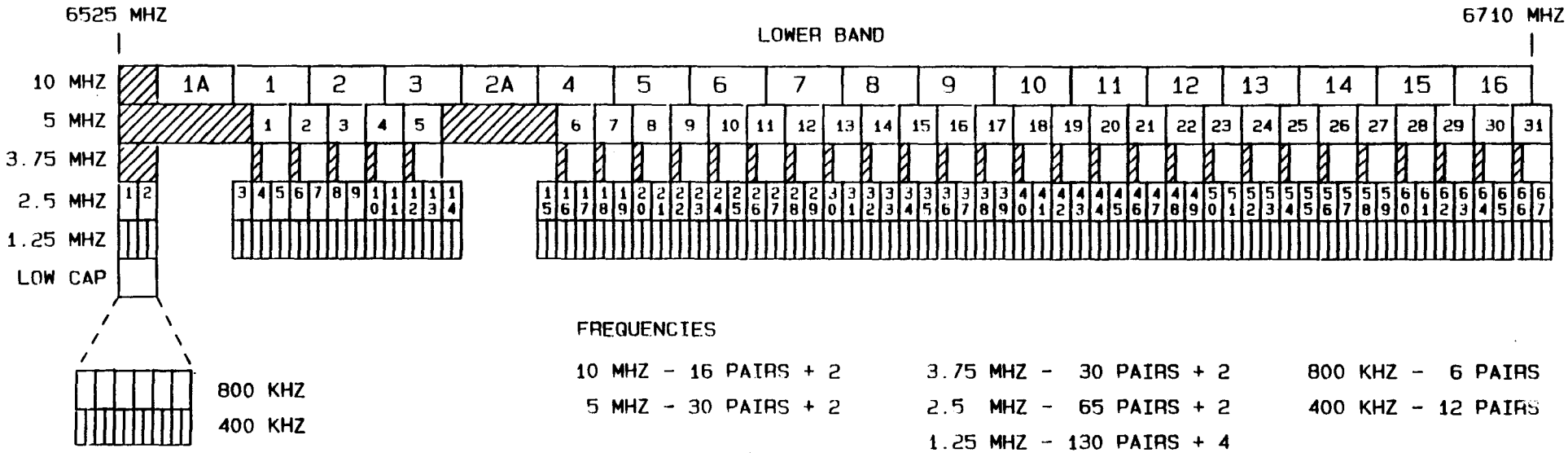


A = ALTERNATE CHANNEL IF ALL OTHER CHANNELS ARE BLOCKED

5.925 - 6.425 GHZ
COMMON CARRIER BAND
FREQUENCY CHANNELIZATION

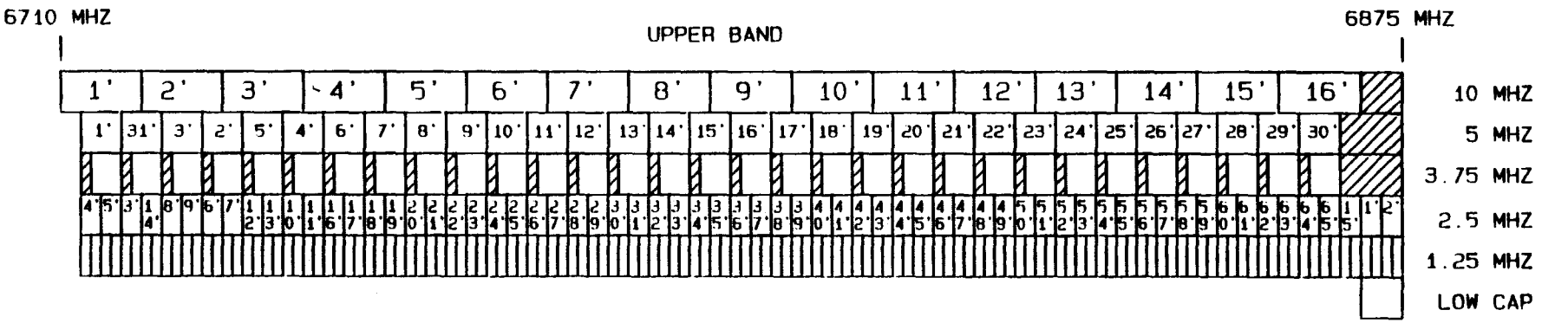
Figure 2

COMPROMISE CHANNEL PLAN – UPPER 6 GHZ BAND



FREQUENCIES

10 MHZ – 16 PAIRS + 2
5 MHZ – 30 PAIRS + 2
3.75 MHZ – 30 PAIRS + 2
2.5 MHZ – 65 PAIRS + 2
1.25 MHZ – 130 PAIRS + 4
800 KHZ – 6 PAIRS
400 KHZ – 12 PAIRS

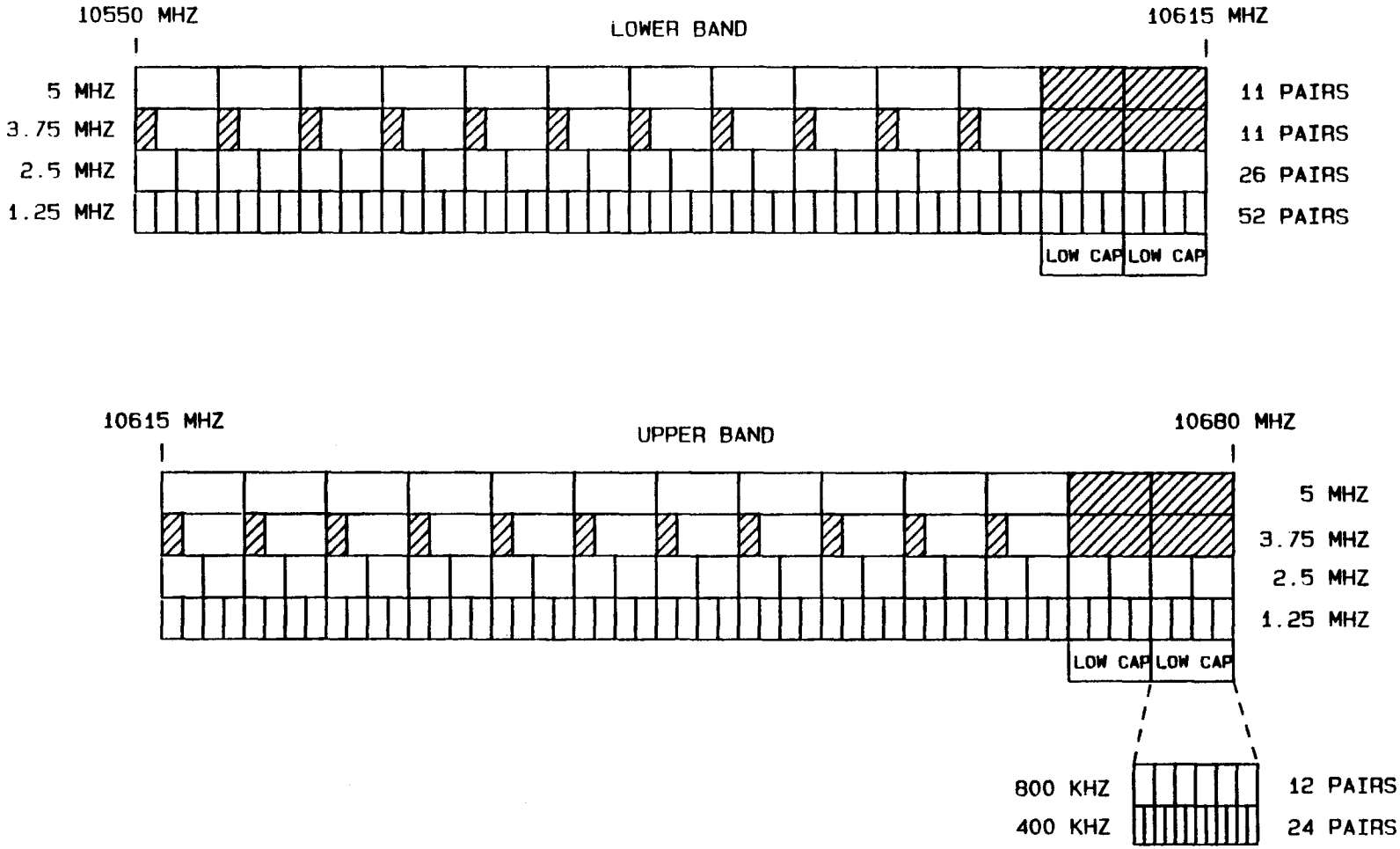


NOTE. 1. 10 MHZ CHANNELS 1 AND 1', 2 AND 2' AVAILABLE FOR UNPAIRED USE
2. 5 MHZ CHANNELS 1 AND 1', 3 AND 3', 31 AND 31' FOR UNPAIRED USE
3. 10 MHZ CHANNELS 1A AND 2A FOR EMERGENCY RESTORATION

6.525 – 6.875 GHZ
PRIVATE OPERATIONAL FIXED
FREQUENCY CHANNELIZATION

Figure 3

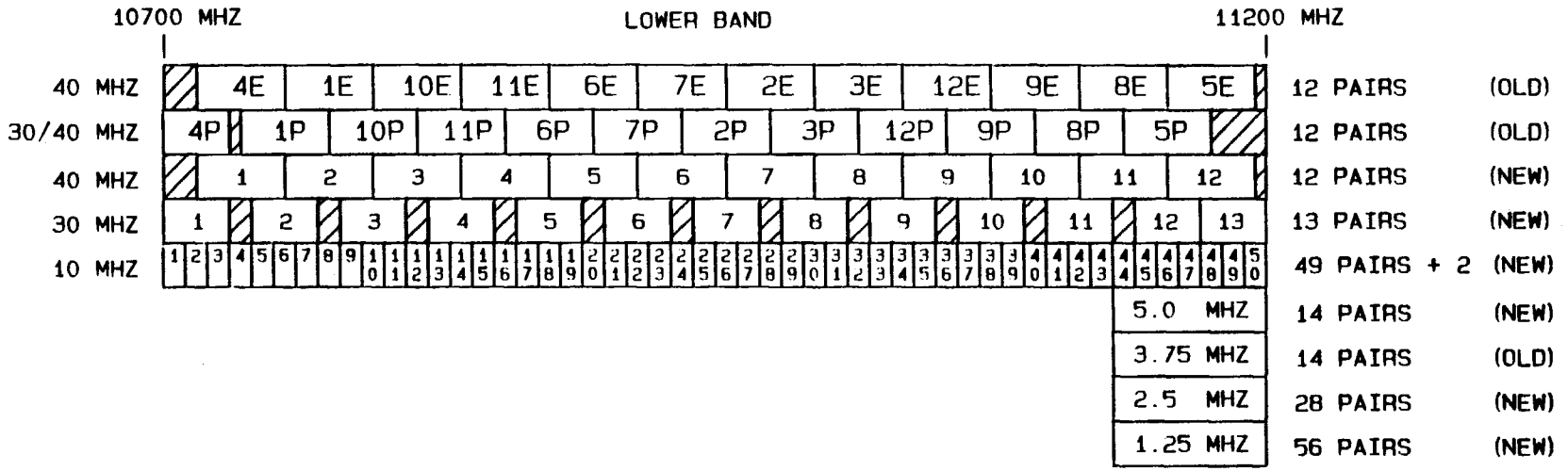
COMPROMISE CHANNEL PLAN – 10 GHZ BAND

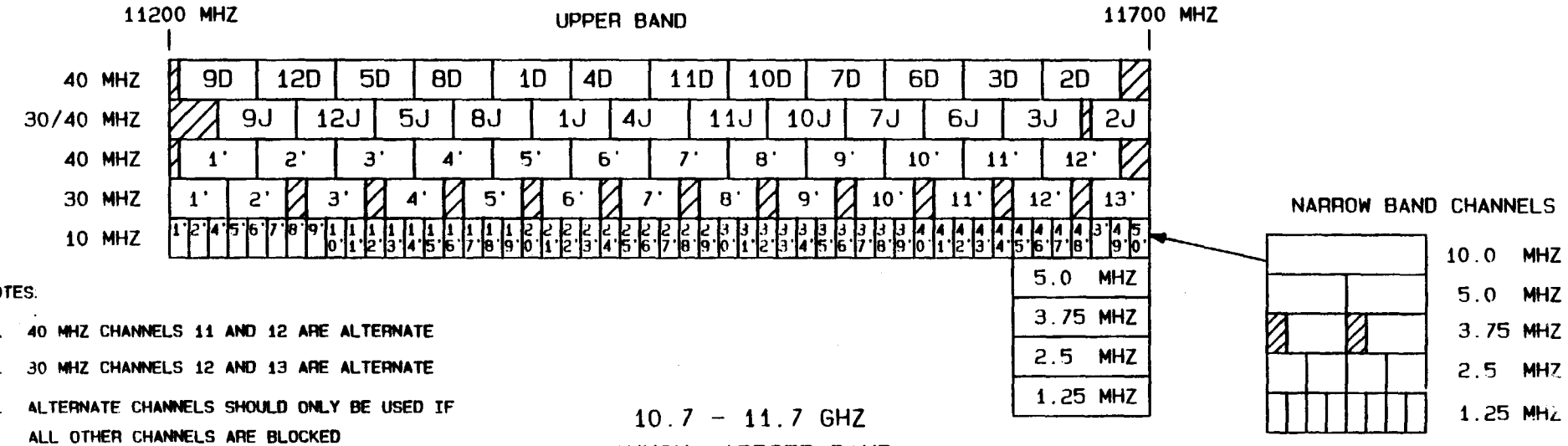


10.55 - 10.68 GHZ
FREQUENCY CHANNELIZATION

Figure 4

COMPROMISE CHANNEL PLAN – 11 GHZ BAND





NOTES.

1. 40 MHZ CHANNELS 11 AND 12 ARE ALTERNATE
2. 30 MHZ CHANNELS 12 AND 13 ARE ALTERNATE
3. ALTERNATE CHANNELS SHOULD ONLY BE USED IF ALL OTHER CHANNELS ARE BLOCKED
4. 10 MHZ CHANNELS 3 AND 3' ARE UNPAIRED

10.7 – 11.7 GHZ
COMMON CARRIER BAND
FREQUENCY CHANNELIZATION

Figure 5

Proposed FCC Rules and Regulations

PROPOSED RULE CHANGES

I. Part 2 of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

PART 2 - FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS: